The New Economy and Banks and Financial Institutions

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Glossary

Adverse selection: A "hidden information" problem that arises when one side of a transaction has inadequate information about the other side, leading to a process of selection that is adverse to the party that is inadequately informed. When applied to product markets, this is sometimes described as a "lemons" problem.

Asymmetric information: The condition where one side of a transaction or market knows something (often about itself) that the other side does not know. The two primary categories of asymmetric information are "hidden information" (which yields the problem of "adverse selection" or "lemons") and "hidden action" (which yields the problem of ("moral hazard", "agency", or "agent-principal").

Credit scoring: The process whereby standardized data about large numbers of borrowers, including their repayment history, are collected and analyzed, so as to yield predictions (a "credit score") as to the likelihood of loan repayment by a borrower with certain bundle of characteristics.

Fiduciary obligation: The obligation on the part of one party to a financial transaction to take into account the best interests of another party.

Financial intermediary: An institution that invests primarily in financial assets (e.g., loans, mortgages, bonds, shares of stock) and that issues liabilities on itself (e.g., deposits) so as to provide the funding for those investments. Examples include banks and other depositories, insurance companies, finance companies, pension funds, capital venture firms, leasing companies, mutual funds, and hedge funds.

Financial facilitator: A firm that facilitates financial transactions but that does not act primarily as a financial intermediary. Examples include brokers, dealers, advisers, investment bankers, mortgage bankers, underwriters, analysts, ratings firms, and accountants.

Government sponsored enterprises (GSEs): A limited-purpose corporation that is chartered by the federal government but that has private shareholders. The two most prominent GSEs are the

Federal National Mortgage Association ("Fannie Mae") and The Federal National Home Loan Corporation ("Freddie Mac").

Moral hazard: A "hidden action" problem that arises because of the changed circumstances and incentives that are a consequence of a contract or agreement and because of the inability of one side of the contract or agreement adequately to monitor the other. This is also often known as an "agency" or "agent-principal" problem.

Predatory lending: The process of lending excessively large amounts at excessively high rates to individuals for whom such loans are inappropriate (e.g., because of their inability to appreciate fully the consequences of their actions).

Securitization: The process of converting bundles of non-tradable loans or similar obligations (which are assets from the perspective of the holder) into tradable securities. Examples include the "packaging" of residential mortgages, automobile loans, boat loans, commercial real estate mortgages, and credit-card receivables.

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Banks and financial institutions -- indeed the financial sector generally -- have been heavily influenced by "the new economy." Some of these channels of influence have been direct and obvious; others have been more subtle; and there have been a few areas where banks especially have lagged. Because of the financial sector's importance and centrality for any economy, as well as some special characteristics of the sector, the study of its relation to the new economy is worthwhile.

I. The Functions of the Financial Sector

The financial sector performs two important functions in almost any economy. First, it provides the channels through which a society's savings are converted into investments. Thus, financial intermediaries -- banks and other depositories, insurance companies, finance companies, pension funds, mutual funds, venture capital funds, leasing firms, and so-called hedge funds -- provide vehicles for individuals, enterprises, and governments to "park" their surplus earnings: to save. These intermediaries also lend and invest those savings, thus accomplishing the transformation. In addition, financial facilitators -- brokers, dealers, investment bankers, mortgage bankers, underwriters, advisors, analysts, ratings firms, accountants -- provide the services and information that facilitate financial transactions, including efforts of individuals directly to invest their savings and to obtain finance.

Second, the financial sector provides a payments system -- primarily checks and check clearing, although electronic payments are increasingly important -- that "greases the wheels" of the

real economy and encourages efficient transactions.

II. Finance is Special

Finance is special and worthy of special attention, for at least three reasons. First, finance is ubiquitous. Enterprises need finance in order to invest in factories, equipment, and inventories in anticipation of future sales and profits. Governments need finance to cover shortfalls between expenditures and revenues. And individuals need finance to permit the purchase of "big ticket" items (e.g., a house, a car, a wedding celebration, a vacation) that exceed the individual's short-run flow of income. In essence, finance allows the spreading of the cost over time or the deferral of the cost until some future date (when income is expected to be higher).

Second, as was discussed above, finance is associated with the payments system, which again is ubiquitous. In the U.S., this payments system historically has been dominated by checks and check clearing, but electronic payments -- such as direct deposit, automatic bill payment, and point-of-sale debit -- have recently become increasingly important.

Third, finance has an inherent and unavoidable time dimension that is not shared by most other transactions.[1] A financial transaction -- say, a loan or an investment -- involves an initial transfer of funds and then the expectation that *at some future date or dates* the funds will be returned (as the repayment of a loan with interest, or the returns on an equity investment).[2] This unavoidable time gap gives rise to potential problems of asymmetric information. Before making a loan a lender[3] will have difficulty discerning who is a trustworthy borrower (with a high probability

[1] Rental transactions are an exception and do share this feature.

[2] Similarly, insurance involves initial payments in the expectation of a payoff if the insured-against event occurs.

[3] For the sake of compactness, I will describe these problems in terms of a lender and a borrower; but they apply equally well to other forms of finance, such as equity investments and insurance. Indeed, the terms "adverse selection" and "moral hazard" first came into common usage in the

of repaying) and who is a risky borrower (with a low probability of repaying); this raises the problem of "adverse selection". After making the loan, the lender still has to worry about the borrower's defaulting on the loan; this is the problem of "moral hazard". In many ways, the problems of asymmetric information create an informational "fog" that lenders (and low-risk borrowers) want to try to pierce.

It is worth noting that there is a link between this lending problem and the financial sector's centrality in the payments system: When individual A accepts the check of individual B as payment in a transaction, the former is essentially acting as a short-term lender, granting a short-term loan to the latter (until the check is cashed and cleared). Thus, the payments system itself (unless only government-issued currency and coins are used) involves the same problems of asymmetric information.

As we will see, all three areas of specialness have been affected by the new economy.

III. The New Economy

An essential feature of the new economy has been the dramatic improvements in the capabilities of microprocessors and their complementary components (such as computer hard drives). In turn, these have meant dramatic improvements -- lower costs and expanded capabilities -- for data processing and telecommunications.[4]

The prominent manifestations of these improvements have been the widespread business and home usage of personal computers and the rapid expansion of the Internet, used for communication (e-mail) and for information and transactions (webpages on the World Wide Web). The manifestations in the financial sector have been more subtle -- and in some cases slow -- but

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insurance industry.

[4] Improved fiber-optic cable and lasers have also been important for telecommunications.

nevertheless important.

IV. Information, Finance, and the New Economy

Recall the problems of asymmetric information as applied to finance: The lender wants to get his/her money back (with interest), but is unsure as to who is a good risk before the event and is still worried about repayment after the loan has been made. As the term "asymmetric information" implies, at the heart of the problem is information -- or its lack. But the new economy is all about "faster, better, cheaper" information, which ought to have a significant effect on finance. And it does.

A convenient way of portraying the link between information and finance is provided in Figure 1. In that figure, potential borrowers are arrayed along a one-dimensional spectrum of "informational transparency" (for financial purposes). At the right are highly transparent entities (e.g., the U.S. Government, or the General Motors Corporation); at the left are extremely opaque entities (e.g., a small start-up enterprise, or a young adult).

Figure 1 also shows from whom these entities are likely to obtain their finance. (a) The highly opaque entities at the left will have to rely on friends and family, plus self-finance. The friends and family are likely to have special information (as well as extra points of leverage in extracting repayment) that outside lenders would not have. (b) The highly transparent entities at the right will be able to access the public securities markets, where non-specialist investors (with the help of the financial facilitators mentioned above) will feel comfortable buying their bonds and equity shares. And (c) the entities in the middle will rely on specialist lenders -- banks and other financial intermediaries (except mutual funds) -- for their finance; these specialists have the expertise to gather and analyze information about prospective borrowers, so as to sort good risks from not-so-good risks, and to monitor borrowers (so as to reduce defaults) after loans have been made.

The "squiggly" lines that separate the public securities markets from the specialist lending markets and that separate the latter from the "friends and family" finance are meant to convey the idea that the boundaries are fuzzy rather than precise.

Most important for our purposes, the arrows above the squiggly lines point to the left, indicating that the boundaries are moving to the left. Here is where the information revolution of the new economy is having its greatest impact. At the right-hand boundary, the processes of securitization have permitted the securities markets to "invade" areas of lending that were the near-exclusive preserve of the specialist (financial intermediary) lenders two-to-three decades ago. Thus, residential mortgages, credit-card loans, automobile loans, boat loans, and commercial real estate loans are now regularly securitized and traded as securities rather than held as non-tradable assets by a specialist lender. Underlying this securitization has been the information revolution, whereby large amounts of information concerning borrowers and their loans[5] can be collected, transmitted, and analyzed more effectively and cheaply.

Similarly, the boundary on the left has been moving leftward as well. Banks and other intermediaries are offering loans and other financial services to entities that would have been considered to be too opaque a few decades ago. The growth of credit card dissemination and usage, low-documentation mortgages, and 100% loan-to-value mortgages are just a few of the indicators of this side of the information revolution.

Figure 2 expands on these notions by showing two important dimensions of information opaqueness/transparency for business enterprises: age and size. Enterprises that are older and larger are more able to access the public securities markets. Older enterprises have a "track record" that lenders can examine; larger enterprises will usually want larger loans, which better allow lenders to cover their fixed costs of gathering and analyzing the information of the enterprise. Conversely,

[5] From the perspective of the acquirers of these loans, they are assets; hence the term that is frequently used to describe this process is "asset-backed securitization".

younger and smaller enterprises will be more likely to have to rely on self-finance and to access friends and family. And in-between enterprises will be able to access specialist lenders.

Again, the squiggly lines are meant to indicate that the boundaries are not rigid. And, again, the most important message of the diagram for our purposes is that the arrows indicate that the lines are moving toward the origin: Younger and smaller enterprises that once were the exclusive preserve of banks and other specialist lenders can now access the public securities markets; and even younger and smaller enterprises that previously could rely only on friends and family can now get bank loans, including credit-card loans.

We now turn to an extended discussion of some of the manifestations of these changes.

V. Manifestations

The previous sections indicated generally the ways in which the information revolution of the new economy has affected the financial sector. Briefly, information that is better-faster-cheaper has allowed lenders/investors within the financial sector to expand their reach. We now turn to some specifics, largely for the U.S. economy.

A. Changes in the structure of banking.

With better information, banks and other lenders (including entities that traditionally have not been lenders) can extend their lending over a wider geographic range. "Looking the borrower in the eye" may be less important for some kinds of loans, where large amounts of standardized financial information pertaining to borrowers and their repayment histories can provide (through the process of "credit scoring") a statistically high level of confidence as to the likelihood of repayment. The use of credit scoring has increasingly penetrated bank lending, expanding from residential mortgage lending to credit card lending to small business lending. It is now common for consumers to receive credit cards and their associated loans from banks that are located thousands of miles

away, and the ultimate investor in a securitized residential mortgage may be located thousands of miles away from the home-owner mortgage borrower. Even banks' loans to small businesses, which have traditionally been the most "relationship" and "character" oriented, are being transacted over longer distances between banks' offices and the borrowers' locations.

One consequence is more competition, as lenders extend their efforts farther into each other's geographic and customer-base "turf" and as new lenders enter the field.[6] Another is the tendency for existing institutions to grow larger (since they can do more things and do them over a greater distance) and for there to be fewer of them.

This last tendency has been strongly present for banks. (The basic information forces have been reinforced by changes in public policy that have permitted greater intra-state and interstate branching in the U.S. and have permitted greater international banking operations.) Table 1 shows the trends in the numbers of banks, 1980-2001, as well as their average size. Table 2 shows the percentage of all U.S. bank assets that are accounted for by the 10 largest banks and the percentage of assets accounted for by banks that are larger than $10 billion, for 1992-2001. Both tables tell the same story: U.S. banks are becoming fewer and larger, and the largest banks especially are increasing their relative sizes.

Table 3 tells a somewhat similar story with regard to international banking in the U.S. from 1975-2001, whereby non-U.S. banks have generally increased their presence in the U.S.[7] Again, improved information processing and telecommunications (as well as reduced legal restrictions) have surely been influential in permitting this expansion from afar.

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[6] As is true for other expansions discussed below, changes in public policy -- notably reduced legal and regulatory restrictions on such extension efforts -- have also been important.

[7] The "plateau" and slight decline since the early 1990s has largely been caused by the difficulties that have been experienced by Japanese banks generally.

B. Securitization.

A second facet of financial change and expansion that has been fueled by the information revolution has been the securitization of assets that were previously the domain of banks and other depositories. This securitization has proceeded farthest in the area of residential single-family home mortgages. The presences of two "government sponsored enterprises", the Federal National Mortgage Association ("Fannie Mae") and the Federal Home Loan Mortgage Corporation ("Freddie Mac"), have been important factors in this securitization. Table 4 shows the dramatic expansion of their mortgage securitizations and mortgage holdings for the period 1970-2000, and Table 5 shows their substantial shares of various categories of the residential mortgage market.

The expanding implementation of credit scoring has played an important role in the expansion of asset securitization. Further, the expansion of securitization has permitted the "slicing and dicing" of various attributes of these securities -- for example, the "principal only" (POs) and "interest only" (IOs) components of residential mortgage securities -- with a better redistribution of these attributes and risks into the hands (portfolios) of individuals and institutions that are better situated or have stronger preferences for them.

C. The internationalization of the securities markets.

The wider reach of financial transactions has also been manifested in the expansion of international securities markets. Tables 6 and 7 show the rising importance of foreign companies' listings on the two major U.S. stock exchanges, the New York Stock Exchange and the NASDAQ, over the period 1985-2001. Table 8 shows the rising volumes of securities purchases and sales between U.S. and non-U.S. investors over the period 1980-2000. And Table 9 shows the rising importance of foreigners' holdings of U.S. equity and debt securities and also the rising importance of U.S. holdings of the equity and debt securities of other countries.

All of these tables (as well as Table 3 on international banking) tell a consistent story: The

information revolution -- vastly improved and lower cost data processing and telecommunications -- have greatly broadened the geographic reach of finance and facilitated a rising flow of trans-national financial transactions and involvements.[8]

D. Expanded finance.

One important manifestation of expanded finance has been the wider dissemination and use of credit cards (which involve loans from the credit card holder's bank, from the time of purchase until the time that the balance is paid off). In 1970, only about 15% of households had at least one credit card; by 1998 over 67% of households had at least one credit card. Their expanded possession also meant expanded use. In Table 10 that expanded use is documented, for the period 1970-2001. As can be seen, the use of credit cards (as indicated by credit card balances outstanding, relative to GDP) rose substantially from 1970 through 2001. By contrast, other forms of consumer credit (excluding residential mortgages) declined (relative to GDP) through the early 1990s and then increased modestly, but in 2001 was still substantially below the level of 1970.

E. Finance and the new economy expansion.

Another manifestation of the new economy was the growth and expansion of "high-tech" firms in the fields related to information processing and telecommunications; often this was associated with the expansion of the use of the Internet and with "Silicon Valley". Finance played a role in these firms' expansion, first through the provision of "seed capital' by venture capital firms and then through access to the public securities markets via an "initial public offering" (IPO) of a company's stock and subsequent listing on a stock exchange, usually the NASDAQ. The rise of IPO volumes and of the NASDAQ index is documented in Table 11.

[8] As was true for the case of banking, government policies that have reduced the barriers to international capital flows have assisted in broadening these boundaries.

With the bursting of the "Internet bubble" in 2000, IPO volumes have declined substantially, and the NASDAQ index (as of July 2002) has declined by almost three-quarters from its peak, and even the broader-based S&P 500 index has declined by 40% from its peak. Further, the stock market frenzy of the late 1990s clearly induced dubious accounting practices by some companies' senior executives (which were approved by their accountants/auditors) and dubious recommendations and analysis by some securities firms' personnel, who were swept up in the frenzy of benefiting from apparently ever-rising securities prices. These activities were, of course, another example of the kinds of moral hazard behavior.

F. Concerns about too much finance.

The expansion of finance, especially consumer finance, has raised two sets of concerns. First, the rising levels of consumer debt -- as indicated in the last column of Table 10 -- have raised policy worries about widespread hardships if the U.S. economy were to slacken appreciably for a sustained period of time. In this case, many households might find that they had been short-sighted in their borrowing: With their incomes stagnant or reduced, they would find their expanded debt burdens to be excessive, leading to widespread personal bankruptcies and repossessions and thus generating substantial hardships, especially among lower income households. This set of events did not occur during the recession of the early 1990s and has thus far not occurred during the recession of 2001-2002. Nevertheless, it remains a possibility and a constant policy concern.

Second, issues of "predatory" lending -- lending to individuals in amounts and at rates that are clearly inappropriate for them -- have arisen concomitantly with expanded finance. Since less-well-educated and older individuals sometimes have problems understanding the intricacies of finance[9] (which create a separate set of asymmetric information problems), this is likely to be a

[9] A policy manifestation of this problem in the securities world is the specific "suitability" and "know your customer" obligations on the part of brokers and a more general notion of fiduciary obligation on the part of brokers and advisors and other financial facilitators.

persistent problem.

G. Concerns about increases in risk and excessive risk-taking.

In principle, the financial innovations that have accompanied the information revolution of the new economy can allow individuals and institutions better to hedge and reduce risk in their portfolios and find more efficient asset combination that better satisfy their risk-versus-return preferences. But the sheer availability of new and sometimes exotic financial instruments may instead be a cause of increased risk and risk-taking. First, unfamiliarity with or ignorance about the new instruments may cause investors inadvertently to take on more risk. Second, investors who are inclined to be more aggressive and risk-taking (and who may thereby be taking advantage of the asymmetric information disadvantages of others) now have risk-taking instruments more readily available to them. And third, the increased volume of trading in financial instruments may increase the general volatility of those instruments' prices.

VI. A Few Lagging Areas

There are a few places in finance where the information revolution of the new economy has been slow to take hold. We will address two prominent ones.

First, despite the rising importance of electronic payments, especially for "wholesale" transactions among financial institutions but also for retail transactions (of which the credit card expansion has already been documented), the paper check remains as the mainstay of retail transactions in the United States, much more so than in Europe or Japan. Despite the attractiveness of electronic payments, the volume of paper checks continued to rise through the 1990s. As of 2000-2001, the annual volume of checks was estimated at 49.6 billion checks (up from 32 billion in 1979), accounting for $47.7 trillion in payments (up from $24 trillion).[10] The persistence of the

[10] By contrast, electronic payments appear to be only a sixth to a seventh as important, as

check seems to be due to a combination of factors: First, users find the proof-of-transaction and record-keeping aspects of checks worthwhile. Second, the magnetic ink coding system for checks (found at the bottom of each check) has facilitated their system-wide automated reading and sorting. Third, the still-over-8,000 banks have had difficulties in agreeing on common systems and standards to facilitate electronic substitutions for checks.[11] And fourth, banks have tended to underprice check-based transactions to their customers.

Second (and related to the first), banks have been slow to embrace the Internet as a vehicle for transactions. As of mid-year 2000 fewer than two dozen pure Internet banks had been established, and even start-up banks (of which there were an average of 138 per year during the period 1990-2001) rarely chose a purely Internet presence as part of their business model. Further, even established "bricks-and-mortar" banks have been slow to create transactional websites; as of year-end 1999 only about an eighth of all commercial banks had transactional websites, although most large banks had them. But the numbers of bricks-and-mortar branches of banks have continued to increase, despite the rising importance of electronic transactions, as is indicated in the last column of Table 1. Apparently, there are still important aspects of transactions that call for face-to-face contacts.

All of this is in contrast to the securities area, where Internet-based trading was warmly embraced by start-ups and also by some established firms and where Internet-based trading accounted for a quarter-to-a-third of all transactions in some stocks at the height of the trading boom of the late 1990s.

Again, there are a number of reasons for banks' delays. First, banks have been "burned" in the past by failed electronic transactions systems. Second, many bank customers (those who are

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measured by financial value of the transactions.

[11] This is in turn is due to the "network" aspects of banks' interconnectedness with each other.

older and have lower levels of education) have little interest in Internet-based transactions. (Even individuals' usage of automatic teller machines (ATMs) tends to be strongly and positively related to education levels and negatively related to age.) Personal contact with bank tellers and other bank personnel remain important. Third, agreement on common systems among the thousands of banks has been difficult.[12]

VII. Conclusion

The new economy has had a substantial effect on banks and other financial institutions. This is because financial firms rely heavily on information for their basic decisions and the new economy has been all about making information processing and dissemination faster-better-cheaper. There are some lagging aspects of the sector, especially in banking, but a common theme is the difficulty of establishing common systems and standards among an interconnected network of over 8,000 banks. And, despite the faster-better-cheaper aspects of information processing and dissemination, some problems of asymmetric information persist and may even worsen.

As the information revolution of the new economy continues to unfold, the financial sector will surely continue to be heavily affected.

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[12] Again, this is due to banks' network aspects.

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Figure 1: The Spectrum of Informational Transparency/Opaqueneness

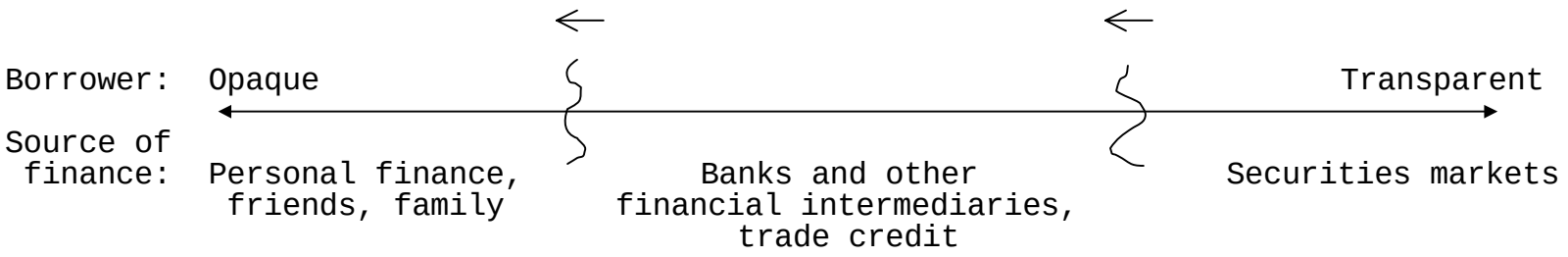

Figure 2: Two Determinants of Opaqueness/Transparency

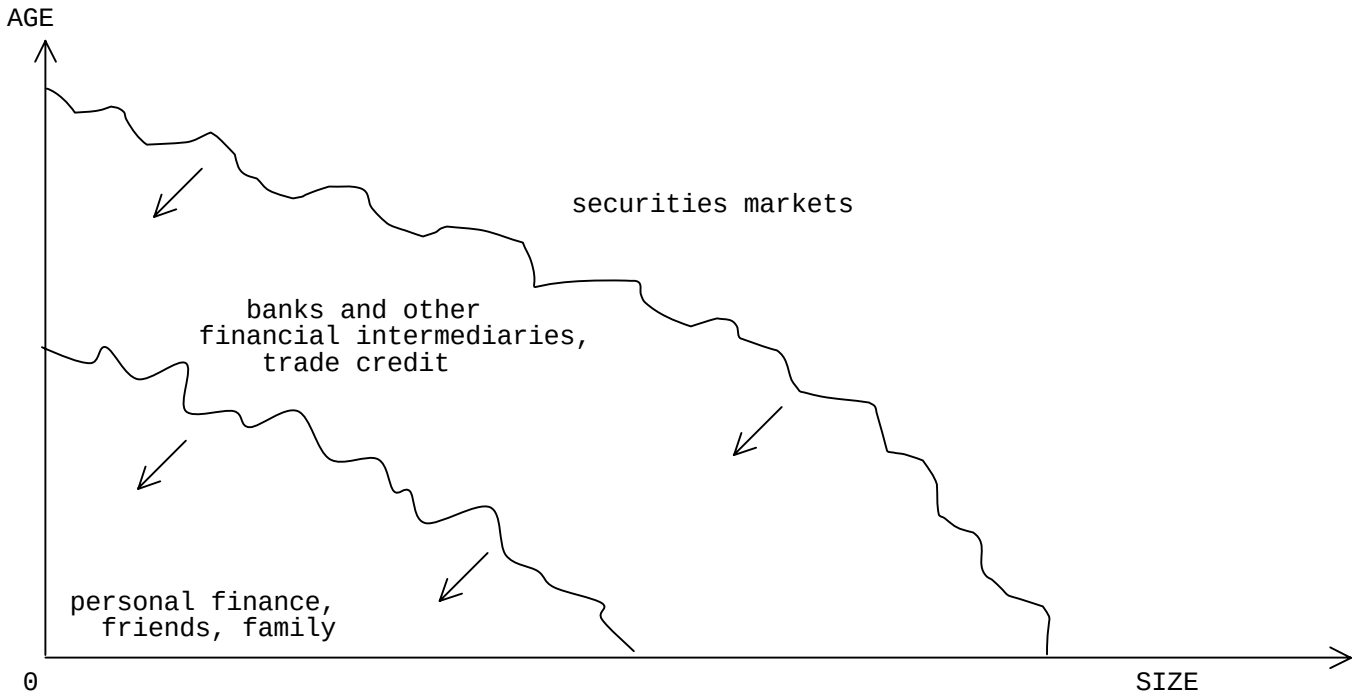

Table 1: Numbers and Average Sizes of Commercial Banks, 1980-2001

Year	Number of Commercial Banks (year end)	Average Size of Bank ($ million)	Number of offices (branches plus home offices)
1980	14,435	$128.6	53,171
1985	14,243	191.9	57,764
1990	12,338	274.7	63,160
1991	11,920	287.8	64,006
1992	11,461	305.9	63,903
1993	10,957	338.2	64,078
1994	10,450	383.8	65,594
1995	9,941	433.8	66,454
1996	9,528	480.5	67,316
1997	9,143	548.5	69,463
1998	8,774	620.1	70,731
1999	8,580	668.4	71,939
2000	8,315	750.3	72,394
2001	8,080	813.0	73,644

Source: FDIC

Table 2: Percentage of All Bank Assets Accounted for by the Largest Ten Banks and by All Banks with Assets Greater than $10 Billion, 1992-2001

Year	Share of Ten Largest Banks	Banks with Assets Greater than $10 Billion	
		Number	Share
1992	22.5%	51	41.2%
1993	22.9	55	44.0
1994	24.6	64	48.4
1995	25.3	75	52.5
1996	22.2	73	56.4
1997	32.0	66	62.2
1998	35.4	71	65.1
1999	35.6	76	66.7
2000	37.8	82	69.7
2001	39.9	80	70.2

Source: FDIC, Federal Reserve

Table 3: Foreign Banks' U.S. Assets, as a Percentage of Total U.S. Bank Assets, 1975-2001

Year	Foreign Bank Assets, as a Percentage of Total U.S. Bank Assets
1975	5.3%
1980	11.9
1985	16.1
1990	21.4
1991	22.6
1992	22.2
1993	21.2
1994	22.0
1995	21.7
1996	20.1
1997	20.6
1998	19.2
1999	19.0
2000	19.9
2001	20.2

Source: Federal Reserve

Table 4: Balance Sheet and Mortgage Backed Securities (MBS) Data, Fannie Mae and Freddie Mac, 1980-2000
(in billions of dollars)

	Fannie Mae			Freddie Mac		
Year	Total assets	Retained mortgage portfolio[a]	MBSs outstanding[b]	Total assets	Retained mortgage portfolio[a]	MBSs outstanding[b]
1980	$57.9	$55.6	$0.0	$5.5	$5.0	$17.0
1985	99.1	94.1	54.6	16.6	13.5	99.9
1990	133.1	114.1	88.1	40.6	21.5	316.4
1995	316.6	252.9	513.2	137.2	107.7	459.0
2000	675.1	607.6	706.7	459.3	385.5	576.1

[a] Includes repurchased MBSs.
[b] Excludes MBSs that are held in portfolio.

Source: Office of Federal Housing Enterprise Oversight

Table 5: The Combined Shares of Fannie Mae and Freddie Mac, as a Percentage of Housing Finance, 2000

Category	Combined Share of Fannie Mae and Freddie Mac
All residential mortgages	39%
All single-family (one-four units) mortgages (excludes multi-family)	40
All single-family "conventional" mortgages (excludes government-insured mortgages)	48
All single-family "conforming" mortgages (excludes "jumbo" mortgages, larger than Fannie Mae and Freddie Mac can finance)	60
All fixed-rate single-family conforming mortgages (excludes adjustable-rate mortgages)	71

Source: Congressional Budget Office

Table 6: Non-U.S. Companies Listed on the New York Stock Exchange (NYSE), 1985-2001

Year	Number of listed non-U.S. companies	Listed non-U.S. companies as a % of all listed companies	Annual value of shares traded of listed non-U.S. companies ($B)	Listed non-U.S. companies as a % of trading value of all listed companies	Market value of listed non-U.S. companies ($B)	Listed non-U.S. companies as a % of market value of all listed companies
1985	54	3.5%	n.a.	n.a.	$68	3.5%
1990	96	5.4	n.a.	n.a.	128	4.5
1991	105	5.6	$89	5.9%	165	4.4
1992	120	5.7	117	6.7	157	3.9
1993	153	6.5	184	8.0	226	5.0
1994	204	7.9	238	9.7	208	4.7
1995	234	8.7	262	8.5	257	4.3
1996	291	10.0	335	8.2	353	4.8
1997	343	11.3	485	8.4	424	4.5
1998	379	12.2	564	7.7	468	4.3
1999	394	13.0	687	7.7	758	6.2
2000	420	14.5	1,141	10.3	739	6.0
2001	448	16.0	789	7.5	587	5.3

Source: NYSE

Table 7: Non-U.S. Issues Listed on the NASDAQ, 1985-2001

Year	Number of listed non-U.S. issues	Listed non-U.S. issues as a % of all listed issues	Annual value of shares traded of all listed non-U.S. traded companies ($B)	Listed non-U.S. companies as a % of trading value of all listed companies
1985	282	5.9%	$13	5.6%
1990	271	5.8	9	2.0
1991	268	5.7	27	3.9
1992	275	5.8	30	3.4
1993	322	6.0	73	5.4
1994	350	6.1	81	5.6
1995	395	6.6	100	4.2
1996	460	7.2	125	3.8
1997	499	8.0	186	4.1
1998	484	8.7	206	3.4
1999	462	8.9	385	3.5
2000	509	10.1	754	3.7
2001	422	9.7	442	4.0

Source: NASDAQ

Table 8: Cross-Border Transactions in Securities between U.S. and Non-U.S. Investors, 1980-2000

Gross sales and purchases of securities between residents and non-residents of the U.S. (as a percentage of U.S. GDP)

1980	9.0%
1985	34.8
1990	88.1
1991	94.5
1992	105.3
1993	127.1
1994	128.8
1995	132.6
1996	156.2
1997	207.6
1998	222.2
1999	200.2
2000	227.8

Source: U.S. Treasury

Table 9: Foreign Holdings of U.S. Equity and Debt Securities, and U.S. Holdings of Foreign Equity and Debt Securities, 1945-2000

	Foreign holdings of U.S. securities				U.S. holdings of foreign securities			
	Equity		Debt		Equity		Debt	
	Amount (US$B)	As a % of all U.S. equity securities	Amount (U$B)	As a % of all U.S. debt securities	Amount (US$B)	As a % of all U.S. holdings of equity securities	Amount (US$B)	As a % of all U.S. holdings of debt securities
1945	$3	2.5%	$3	1.1%	$1	0.9%	$3	1.1%
1950	3	2.1	4	1.4	1	0.7	3	1.0
1955	7	2.5	6	1.7	2	0.7	3	0.9
1960	9	2.1	13	3.2	4	1.0	6	1.5
1965	15	2.0	17	3.3	5	0.7	9	1.8
1970	27	3.2	30	4.1	7	0.9	14	2.0
1975	33	3.9	80	6.8	10	1.2	27	2.4
1980	75	5.0	182	8.8	19	1.3	56	2.9
1985	137	6.0	375	8.7	44	2.0	106	2.6
1990	244	6.9	716	9.7	198	5.7	190	2.8
1991	299	6.1	779	9.7	279	5.8	212	2.8
1992	329	6.1	860	9.8	314	5.8	225	2.8
1993	374	5.9	994	10.4	544	8.4	299	3.4
1994	398	6.3	1,094	10.8	628	9.6	285	3.1
1995	528	6.2	1,409	13.0	777	8.9	355	3.6
1996	657	6.4	1,801	15.4	1,003	9.4	434	4.2
1997	920	6.9	2,114	16.8	1,208	8.9	493	4.5
1998	1,175	7.5	2,397	17.3	1,476	9.3	536	4.5
1999	1,538	7.9	2,557	16.9	2,027	10.1	568	4.3
2000	1,748	10.0	2,887	18.1	1,787	10.2	626	4.6

Source: Federal Reserve

Table 10: Outstanding Consumer Credit, as a Percentage of U.S. GDP, 1970-2001

Year	End-of-Year Credit Card Balances, as a Percentage of GDP	Other Consumer Credit[a] Outstanding at Year-End, as a Percentage of GDP	Sum of Credit Card Balances and Other Consumer Credit Outstanding at Year-End, as a Percentage of GDP
1970	0.5%	12.3%	12.8%
1975	0.9	11.7	12.6
1980	2.1	10.6	12.7
1985	2.9	11.2	14.1
1990	4.3	9.6	13.7
1991	4.6	8.6	13.2
1992	4.6	8.0	12.6
1993	4.9	8.0	12.9
1994	5.4	8.5	13.9
1995	6.3	8.9	15.2
1996	6.7	8.9	15.6
1997	6.7	8.6	15.3
1998	6.7	8.7	15.4
1999	6.7	8.9	15.6
2000	7.0	9.1	16.1
2001	7.1	9.5	16.6

[a] Excludes residential mortgages

Source: Federal Reserve

Table 11: Initial Public Offerings (IPOs) and the NASDAQ Index, 1980-2001

Year	Number of IPOs	Capital Raised by IPOs ($ billion)	NASDAQ Index (year end)
1980	70	$18.7	202.3
1985	179	29.0	324.9
1990	104	19.4	373.8
1991	273	48.2	586.3
1992	385	57.1	677.0
1993	483	82.7	776.8
1994	387	47.6	752.0
1995	432	56.3	1,052.1
1996	621	82.4	1,291.0
1997	432	81.4	1,570.4
1998	267	82.9	2,192.7
1999	457	105.7	4,069.3
2000	346	129.7	2,470.5
2001	80	n.a.	1,577.0

Sources: Federal Reserve; Thomson Financial Securities Data Corp.; NASDAQ